

26th, Me., N. H., N. Y., Ohio, Vt.; 27th, Me., N. H., N. Y., Vt., Wis.; 28th, Me., Ohio; 29th, Iowa, N. Y., Tenn., Ill.; 30th, Iowa, Va.

*Lunar Halos.*—1st, Iowa, Mass., Minn., N. J., N. C., Ohio, Va., W. Va., Wis., R. I., Ky., Fla.; 2d, Neb., Penn., Conn., Va.; 3d, Neb., Ala., Minn., Col., Kan.; 4th, Ill., Mich., Minn., Ohio, N. C., Cal., N. Y., N. M.; 5th, Col., Iowa, Ky., N. Y., N. C., Ohio, Ill., Wis.; 6th, Ark., Mich., Dak., Wis., Ill., N. Y., Penn., Ohio, Kan., R. I., Minn., Fla., N. M.; 7th, N. Y., Tenn., Utah, Va., N. C., Penn., Mich., Ky., S. C., Ga.; 8th, Cal., Ind., Me., Tenn., Neb.; 9th, Mich., Ohio, Tenn., N. C., Dak.; 10th, Tenn., N. C., Ala., N. J., Penn., N. Y., Dak.; 11th, N. Y., N. C., N. J.; 13th, N. C.; 15th, Kan.; 16th, N. Y., Kan.; 26th, Utah, Wis.; 27th, Penn., Ga., S. C., Ky., Kan., N. C.; 28th, N. J., Tenn., Kan., Col., N. M., N. C.; 29th, Ill., Cal., Ga., Col., Minn., La., Texas, Kan., N. C.; 30th, Ind., Va., Minn., Ala., Ga., Dak., Wis., La., Ky., N. C.

## MISCELLANEOUS PHENOMENA.

*Climate of the cotton belt.*—In the cotton interests, the following information is furnished: Chart No. II shows that the cotton-belt is mostly included between the monthly isotherms for April of 70° and 60°, and the table on the same chart shows that these temperatures vary less than one degree from the mean for a long series of years, being slightly above the mean in the Gulf States, and slightly below in the South Atlantic States.

Chart No. III shows that the monthly rain-fall for the cotton-belt has been largely above the mean, particularly in Alabama. A very large portion of this rain fell during the first three days of the month, leaving the latter part of the month very dry; in consequence the crops must have suffered, before the close of the month, in many localities. But abundant rains fell in all of the cotton States, except southern Texas, during the second week of May. The number of days on which rain fell during April, in the cotton district, varied from 2 at Indianola to 10 at Shreveport, Vicksburg and Mobile, and the mean relative humidity in the same section ranges between 54 per cent. at Memphis and Nashville to 77 at Galveston.

*Polar Bands* were observed at Milwaukee on the 18th; Freehold, N. J., 2d and 13th; Carthage, Ohio, 1st, 6th, 7th, and 21st.

*Zoological Phenomena.*—*Birds.*—*Blue birds* seen at Madison Barracks, N. Y., 6th; Afton, Iowa, 3d; Cornish, Me., 13th; Salem, W. Va., 2d; Embarrass, Wis., 7th; Newport, R. I., 12th. *Black birds* seen at Estes Park, Col., 16th; Independence, Iowa, 7th; Muscatine, Iowa, 6th; Nora Springs, Ia., 9th; North Port, Mich., 12th; Auburn, N. H., 8th; Palermo, N. Y., 1st; Flushing, N. Y., 2d; West Charlotte, Vt., 7th; Woodstock, Vt., 27th. *Cat birds* seen at Oregon, Mo., 23; Plattsmouth, Neb., 26th; Urbana, Ohio, 29th; Bethel, Ohio, 29th; Jacksonburg, Ohio, 11th; Clarksville, Tenn., 24th. *Ducks* seen at Morgantown, W. Va., flying east, on the 1st and west on the 2d; Milwaukee, Wis., flying north on the 1st; Pembina, D. T., north, 10th and 12th; St. Paul, Minn., north, 9th. *Geese* seen at Madison Barracks, N. Y., 11th; Mt. Sterling, Ill., 16th, moving north; Harton, Kan., 1st and 3d, north; Cornish, Me., 6th, north; North Port, Mich., 19th, north; Brookhaven, Miss., 23d, north; Emmerson, Neb., 3d, north; Palermo, N. Y., 2d and 12th, north; Morgantown, W. Va., 4th, north; Milwaukee, Wis., 1st, north; Cairo, Ill., 20th, north; Davenport, Iowa, 5th, north; Breckenridge, Minn., 21st and 28th, north; St. Paul, Minn., 8th, north; Atlantic City, N. J., 5th, 7th, 11th, 12th and 14th, north; Newport, R. I., 24th, southeast; Pembina, D. T., 8th, 10th and 12th, north; Portland, Or., south, 2nd and 19th. *Killdeer, Plover and Snipe* seen at Louisville, Ill., 20th. *Martins* seen at Decatur, Ill., 21; Afton, Iowa, 3; Independence, Iowa, 10; Monticello, Iowa, 4; Holton, Kas., 5; Burlingame, Kas., 3; Benettsville, Ky., 6; Corning, Mo., 3; North Hammond, N. Y., 19; Weldon, N. C., 3; Urbana, Ohio, 7; Bellefontaine, Ohio, 10; Kenton, Ohio, 6; Bethel, Ohio, 10; Jacksonburg, Ohio, 6; Ringgold, Ohio, 16; Westchester, Pa., 11; Clarksville, Tenn., 2; Clarksville, Texas, 2; Newport, Vt., 22; Bloomfield, Wis., 11; Embarrass, Wis., 26; Utica, Wis., 9; Morgantown, W. Virg., 13; Grand Haven, 21; Malone, 21. *Meadow Larks:* Estes Park, Col., 16; Golden City, Col., 2d, nesting; Somersett, Mass., 2; Contoocookville, N. H., 16; Bismarck, 10. *Mocking-birds* first seen at Ft. Madison, Io., 13. *Pileatus:* Cai on the 21, moving N. *Pigeons:* Morgantown, W. Virg., 3 and 4, moving W. *Prairie Chickens* seen at Independence, Iowa, 4 and at Monticello, Ia., 5. *Prairie Owls:* Golden City, Col., 29th. *Robins* seen at Fort Ontario, N. Y., 2nd; Madison Barracks, N. Y., 6th; Estes Park, Col., 9th; West Waterville, Me., 10th; Sandish, Me., 2d; Mt. Desert, Me., 8th; Florida, Mass., 12th; Lunenburg, Vt., 12th; West Charlotte, Vt., 1st; Strafford, Vt., 3rd; Newport, Vt., 11th; Salem, West Va., 2nd; Grand Haven, 10th; Malone, 10th; Newport, 12th; Eastport, Me., 19th. *Sand Hill Cranes* seen at Independence, Iowa, 7th; Holton, Kan., 3rd; Emerson, Neb., 3rd. *Swallows* seen at Independence, Iowa, 7th; Standish, Me., 29th; Fall River, Mass., 8th; Litchfield, Mich., 21st; Hudson, Mich., 12th; Contoocookville, N. H., 12th; Wappinger's Fall, N. Y., 28th; Weldon, N. C., 29th; Carthage, O., 29th; Margaretta, O., 27th; Jacksonburg, O., 13th; Ringgold, O., 16th; West Charlotte, Vt., 12th; Prospect Hill, Va., 12th; Embarrass, Wis., 30th; Morgantown, West Va., 14th. *Sparrows* seen at Contoocookville, N. H., 12th; Jacksonburg, O., 10th; Ringgold, O., 12th; Woodstock, Vt., 6th; West Charlotte, Vt., 3rd; Embarrass, Wis., 11th. *Thrush* seen at Baxter Springs, Kan., 6th; Litchfield, Mich., 15th; Urbana, O., 18th; Little Mountain, O., 11th; Woodstock, Vt., 23rd. *Whippoorwills* seen at Monticello, Ark., 6th; Laconia, Ind., 14th; Fort Madison, Iowa, 22nd; Nora Spring,

Iowa, 26th; Benettsville, Ky., 9th; Kensico, N. Y., 23d; Weldon, N. C., 29th; Murphy, N. C., 6th; Little Mountain, Ohio, 4th; Hacienda Saluda, S. C., 6th; Purdy, Tenn., 2d; Alta Vista, Va., 2d. *Woodpeckers* seen at Cornish, Me., 15th; Salem, W. Va., 22d; Utica, Wis., 29th. *Insects*.—*Grasshoppers*' eggs laid August 24th, 1875, hatched out April 21st, 1876, at Golden City, Col.; destroying tobacco plants at Benettsville, Ky., 22d; seen at Stanley, Kan., 28th; seen at Dodge City, Kan., 30th, near which town the ground was thickly covered with the young; seen at Nashville, 13th, numerous in the country roads and city streets. *Colorado beetle* turned up in digging at Wappinger's Falls, N. Y., 28th. *House flies* appeared on 26th at Burlingame, Kan., unusually early, they generally come June 1st. *Trout flies* in creek at Golden City, Col., 29th. *Fire-flies* at Purdy, Tenn., 9th. *Mosquitoes* at Emerson, Neb., 9th. *Fish, &c.*—*Shad* began to run the 12th at Ardenia, N. N.; caught in the Hudson on the 15th, at Wappinger's Falls, N. Y. *Frogs* at Grand Haven, Mich., 23d; West Waterville, Me., 22d; Shelburne, N. H., 29th; Hightston, N. J., 2d; North Hammond, N. Y., 12th; North Volney, N. Y., 11th; Flushing, N. Y., 2d; Tioga, Pa., 12th; Pennville, Pa., 13th; Coalville, Utah, 20th; Salem, West Virginia, 1st.

*Botanical Phenomena*.—*Budding*.—*Gooseberry bushes*, at Riley, Ill., 19th; *Maple trees*, at Philadelphia, Pa., 12th. *Leafing*.—*Current bushes*, at Southington, Conn., 24th. *Leafing and flowering*.—*Choke cherries*, plum, willow, elder, melon cactus, yellow violet, mountain blue grass, bearberry and water-cress, at Golden City, Col., on the 29th. *Blooming*.—*Dogwood*, at Hot Springs, Ark., 11th; *Cactus*, at Estes Park, Col., Breckenridge, Minn., 28th; *Red maple*, at Southington, Conn., 24th; *Peach trees*, at Louisville, Ill., 8th; Decatur, Ill., 13th; *Muscadine*, Iowa, 25th; Fort Madison, 19th; New Market, Md., 17th; Plattsmouth, Neb., 27th; Vineland, N. J., 10th; Marion, Ohio, 21st; Westerville, Ohio, 19th; Ruggles, Ohio, 30th; Margaretta, Ohio, 27th; Cleveland, Ohio, 24th; Wooster, Ohio, 24th; Santa Fe, N. M., 10th; Philadelphia, 22d; *Plum trees*, at Havana, Ill., 18th; Fort Madison, 29th; Holton, Kan., 23d; Morgantown, 14th; *Pear trees*, at Havana, Ill., 18th; Vineland, N. J., 13th; *Cherry trees*, at Fort Madison, Iowa, 24th; Holton, Kan., 23d; Baxter Springs, Kan., 24th; Newark, N. J., 25th; Morgantown, 14th; *Apple trees*, at Fort Madison, Iowa, 23th; Holton, Kan., 23d; Baxter Springs, Kan., 24th; Hillsboro', Ohio, 27th; Morgantown, 26th; *Cowslips*, at Riley, Ill., 24th; *Roses*, at Clarksville, Texas, 30th; very late; usually done blooming by May 1st; *Dandelions*, at Salem, W. Va., 22d. *Ripening*.—*Early Rose potatoes*, nearly ripe at Newport, Fla., 30th; *Cucumbers*, nearly ripe at Newport, Fla., 30th; *Dew berries*, ripe at Welborn, Fla., 29th; *Green peas* and *potatoes*, abundant at Welborn, Fla., 17th.

*Prairie fires* occurred in the vicinity of Dodge City, Kan., on the 19th; Breckenridge, Minn., 18, 19, 20, 21, 25, 30; La Crosse, Wis., 19, 22, 24; St. Paul, Minn., 17, 18, 29; Monticello, Iowa, 8, 24, 25; De Soto, Neb., 11, 12, 30; Oregon, Mo., 15, 20, 21. *Forest fires* occurred near Brookhaven, N. Y., 8, 27; Wappinger's Falls, N. Y., 26; Atco, N. J., 21.

*Zodiacal light* was observed at Auburn, N. H., on the 18th; Atco, N. J., 18; Waterburgh, N. Y., 11.

*Earthquakes*.—The only earthquake reported occurred in St. Mary's county, Md., on the 10th.

*Meteors* were seen on the 7th at Council Bluffs, Iowa; 8th, Crawfordsville, Ind.; 9th, Crawfordsville, Ind., Ellinwood, Kan.; 11th, Mt. Auburn, Ohio; 14th, Monticello, Iowa; 18th, Corning, Mo.; 19th, Buffalo, N. Y., Smithville, N. C.; 20th, Logansport, Ind., Milton, Fla.; 21st, Smithville, N. C., Green Spring, Ala.; 22d, Montgomery, Ala., Milton, Fla.; 24th, Belmont Farm, Texas; 27th, Davenport, Iowa, North Platte, Neb., Rock Island, Ill.; 28th, Smithville, N. C.

NOTE.—Reports of Inspectors of the Signal Service during the present month, comment on the especial value to the cotton-producing interests of the Signal Service reports, and instance that a single severe storm in the cotton belt has been known to cause fluctuation in total value of the annual crop amounting to \$20,000,000. The usual damages by rain, in the case of hay crops, are believed to have been greatly reduced in Indiana and Illinois, during the past year, by the prevailing custom of consulting the Farmer's Bulletin before cutting the hay.

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Albert J. Meyer

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